Installing Microsoft Windows on an HP ProBook or EliteBook Notebook PC and creating an image

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Executive summary

This white paper provides instructions for installing the Microsoft® Windows® 7 Professional, Microsoft® Windows® XP Professional and Windows Vista® Business operating systems (OSs) along with applicable HP drivers and applications on select HP Elitebook and HP ProBook Notebook PC models. Instructions are also provided for creating a common image for 2008 HP Business Notebook PCs.

Target audience: This white paper is intended for IT staff.

System requirements and prerequisites

Information regarding minimum hardware requirements for the installation of Windows is available at http://www.microsoft.com.

Supported models

- HP EliteBook 2540p Notebook PC
- HP EliteBook 2740p Notebook PC
- HP EliteBook 8440p Notebook PC
- HP EliteBook 8540p Notebook PC
- HP ProBook 6440b Notebook PC
- HP ProBook 6540b Notebook PC

WARNING

Before proceeding with the installation of Windows, you should back up all personal data, such as files and images. If it is not backed up, your personal data will be lost.

You need the following items to help you install Windows:

- A supported HP business notebook PC model
- High-speed Internet access
- Windows OS recovery media provided by HP
  - Media from an alternate source may require a product ID (PID)[1]
- HP Driver Recovery DVD for the particular model on which the OS is being installed
- HP Softpaq Download Manager

Important

Make sure you have the latest compatible versions of drivers and enhancements (as listed in Table 1).
In addition, you must have a Microsoft operating system license for each system on which you install Windows XP Professional or Vista Business. A Vista Business license allows you to use either XP Professional or Vista Business. The Windows 7 Professional license allows you to use Windows 7 Professional, Windows XP Professional or Windows Vista Business.

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[1] Typically provided on the product's Certificate of Authenticity

Installing the OS, drivers, and enhancements

This section provides guidelines for users performing a clean installation of Windows on a supported HP business notebook PC.

For more information on installing Windows, refer to the Microsoft website at
http://windows.microsoft.com/help.

1. Depending on the particular Internet connection(s) being used, download the driver(s) for the network interface card and/or wireless LAN adapter driver. Save to a USB storage device or optical media.

   – Contact your network administrator to properly set up the networking components of Windows.

2. Change the boot order in F10 Setup so that the optical drive is the first boot device.

3. Boot with the Windows OS recovery disc provided by HP; follow the on-screen instructions for installation.

   – OS recovery media from HP do not require a product ID or key for installation on a supported HP business notebook PC.

   – Older Windows XP OS media do not include serial ATA (SATA) drivers. For more information on loading SATA drivers, refer to the white paper, "Installing SATA Drivers on HP Compaq Notebook PCs."

   – Retain the **HP_TOOLS** partition to provide support for HP QuickLook 2, the F10 Setup graphical user interface, and HP diagnostics. For more information, refer to the white paper, "HP Business Notebook Computer EFI Guidelines."

4. Install the appropriate communications driver from the Driver Recovery DVD and configure your Internet connection.

   – For Windows XP, install the Microsoft Universal Audio Architecture (UAA) Bus Driver and Essential System Updates, then reboot prior to installing the audio and modem drivers. The audio driver may require manual installation.

5. Install the desired patches from www.microsoft.com/windowsupdate. Reboot the system after these patches have been installed.

   – For Windows XP, you must install Microsoft DirectX 9 and Microsoft .NET 2.0.

6. Install the drivers and enhancements listed in Table 1 using HP SoftPaq Download Manager (available from www.hp.com/go/sdm); alternatively, you can download individual SoftPaqs from the HP website.

   For more information, refer to Appendix A: Using HP SoftPaq Download Manager.

Drivers and enhancements

Table 1 lists minimum recommended drivers and enhancements. Appropriate versions and SoftPaq
numbers are provided for Windows 7, Windows XP Professional and Vista Business.

Table 1. Minimum recommended software versions and Softpaq numbers

Name	Version	SoftPaq#	XP	Vista	Windows 7	Required
Broadcom Wireless LAN Driver	5.60.48.31	SP47346	X			Yes
Broadcom Wireless LAN Driver	5.60.48.31	SP47342			X	Yes
Broadcom Wireless LAN Driver	5.60.48.31	SP47344		X		Yes
Broadcom Wireless Utility	5.60.48.31	SP47345	X			Yes
Embedded Security for HP ProtectTools	5.70.2130.1	SP47593	X	X	X	Yes
Essential System Updates for Vista	1.1,A	SP47284		X		Yes
Essential System Updates for Windows 7	1.1,A	SP47131			X	Yes
Essential System Updates for Windows XP	4.0,E	SP46859	X			Yes
HP 3D DriveGuard	4.0.4.1	SP45248		X	X	Yes
HP 3D DriveGuard for XP	1.10.7.1	SP45135	X			Yes
HP Connection Manager 3.1	3.1.1.72	SP46730	X	X	X	
HP Integrated module with Bluetooth wireless technology	5.5.	SP46183	X			Yes
HP Integrated module with Bluetooth wireless technology	6.2.1	SP46061		X		Yes
HP Integrated module with Bluetooth wireless technology	7.00.00.0	SP47022			X	Yes
HP Power Assistant	1.0.3.2	SP46857	X	X	X	Yes
HP Power Data	1.0.11.114	SP47300	X	X	X	Yes
HP ProtectTools Security Manager	5.0.4.699	SP47500	X	X	X	Yes
HP Quick Launch Buttons	6.50.13.1	SP47275	X	X	X	Yes
HP Universal Camera Driver	1.00.00.0	SP47047	X	X	X	Yes
HP Wireless Assistant 4.0	4.0.4.2	SP47297	X	X	X	Yes

IDT HD Audio Driver	5.10.6267.0; 6.10.6267.0	SP47318	X	X	X	Yes
Intel 82577LM Gigabit Ethernet Driver for Microsoft Windows	11.5.4.0	SP47528	X	X	X	Yes
Intel Chipset Installation Utility	9.1.1.1025	SP47418	X	X	X	Yes
Intel HD Graphics Driver	8.15.10.2057	SP47536		X	X	Yes
Intel HD Graphics Driver	6.14.10.5179	SP47585	X			Yes
Intel Management Engine Components Driver	6.0.2.1194	SP47053	X	X	X	Yes
Intel Matrix Storage Manager	8.9.2.1002	SP47526	X	X	X	Yes
Intel PRO/Wireless Drivers for Microsoft Windows XP	13.0.0	SP47837	X			Yes
Intel PRO/Wireless Drivers for Microsoft Windows 7	13.0.0	SP47671			X	Yes
Intel PRO/Wireless Drivers for Microsoft Windows Vista	13.0.0	SP45859		X		Yes
Java Card Security for HP ProtectTools	5.0.4.1	SP45005	X	X	X	Yes
LightScribe System Software	1.18.6.1	SP47077	X	X	X	
LSI HDA Modem Driver for Windows	2.2.97.0	SP45229	X	X	X	Yes
NEC USB 3.0 Driver (8540p only)	1.0.18.0	SP47527	X	X	X	Yes
NVIDIA Graphics Driver for Microsoft Windows 7	188.12	SP46961			X	Yes
NVIDIA Graphics Driver for Microsoft Windows Vista	188.12	SP46962		X		Yes
NVIDIA XP Workstation Graphics Driver	188.12	SP46963	X			Yes
Privacy Manager for HP ProtectTools	5.0.1.734	SP46853	X	X	X	Yes
Ricoh Media Card Driver	2.13.00.05	SP46999	X	X	X	Yes
Synaptics Touchpad Driver	14.0.19	SP47249	X	X	X	Yes
System Default Settings	6.0.3.9	SP47024	X			Yes
System Default Settings for Microsoft Vista	2.0.2.3	SP46958		X		Yes
System Default Settings for Windows 7	1.0.1.5	SP46497			X	Yes
Validity Fingerprint Driver	4.0.11.0	SP47390	X	X	X	Yes

Building a common image

Instructions are provided for building Windows XP Professional and Windows Vista Business images.

Windows XP Professional

1. Install Windows XP Professional on a supported platform.
2. Install the following and then reboot the system:
   – Microsoft .NET 2.0
   – Essential System Updates for Windows XP
   – System Default Settings
   – Microsoft Universal Audio Architecture (UAA) High Definition Audio class driver
3. Copy the **i386** folder from the Windows XP installation DVD to the root of **%SystemDrive%**.
4. Extract **deploy.cab** from the **SUPPORT\TOOLS** folder of the install DVD to the **%SystemDrive%\sysprep** folder.
5. Copy all device drivers to the **%SystemDrive%\DRV** folder.
6. As shown in Figure 1, create an **install.bat** file that contains the following:
   – Authentec Fingerprint Driver
   – HP Quick Launch Buttons
   – Intel Matrix Storage Manager
   – HP Multi-WWAN Driver Installer

   Silence the install command in the **%SystemDrive%\DRV** folder.

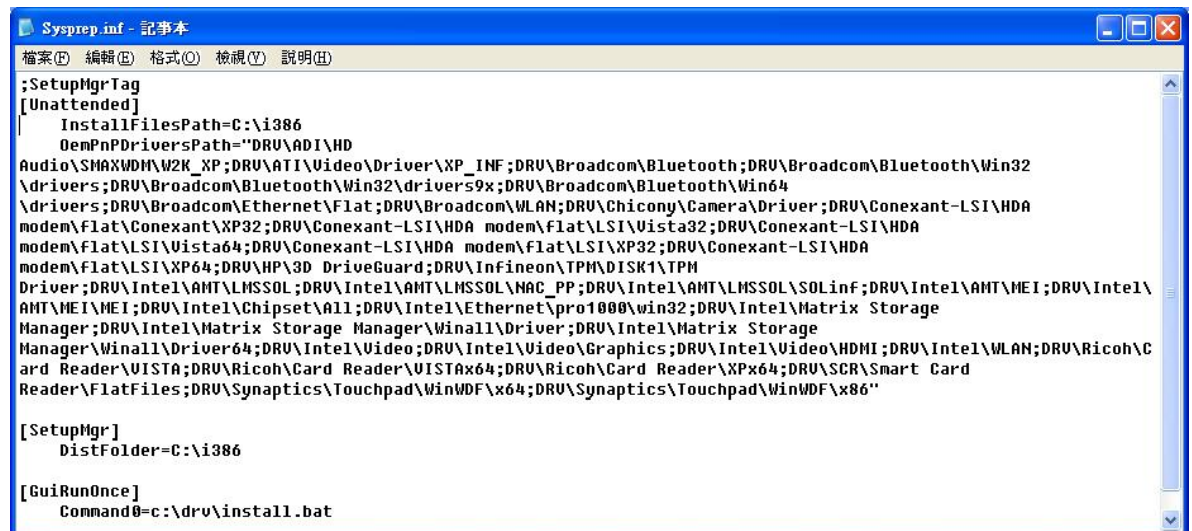**Figure 1.** Creating an **install.bat** file

7. Run **setupmgr.exe** from the **%SystemDrive%\sysprep** folder to create a **sysprep.inf** file.

8. As shown in Figure 2, make the following changes to the **sysprep.inf** file.
   – In the [Unattended] section –
     Change **InstallFilesPath** to **%SystemDrive%\i386**.
     The **OemPnPDriversPath** should include paths for all **.inf** installed drivers.
   – In the [SetupMgr] section –
     Change **DistFolder** to **%SystemDrive%\i386**
   – In the [GuiRunOnce] section –
     Place the **install.bat** command in this section

Note
Figure 2 does not show a complete **sysprep.inf** file.

Figure 2. Updating the **sysprep.inf** file

9. Run the following command:

   sysprep –mini –shutdown –reseal

10. After shutting down the system, use hard-drive duplication software (such as Norton Ghost) to deploy the common image.

Windows Vista Business / Windows 7 Professional

1. Install Windows Vista Business on a supported platform.
2. Install the following and then reboot the system:
   – Essential System Updates for Windows Vista SP2
   – Vista Default Settings
3. Copy all device drivers to the **%SystemDrive%\DRV** folder.
4. Run Windows System Image Manager to create the **sysprep.xml** file.

5. As shown in Figure 3, make the following changes to the **sysprep.xml** file:

    –   In the Microsoft-Windows-PnpCustomizationsNonWinPE component –
        Set the PnP driver search path.

    –   In the Microsoft-Windows-Deployment component –
        Following the **pass="auditUser"** phase, set **Reseal** in **OOBE** mode.

    –   In the Microsoft-Windows-Shell-Setup component –
        Set up the Authentec Fingerprint Driver, HP Quick Launch Buttons, Intel Matrix Storage
        Manager, and HP Multi-WWAN Driver Installer (for more information, refer to Figure 1).
        Silence the install command after passing the **OOBE** phase.

Note

Figure 3 does not show the complete **sysprep.xml** file.

Figure 3. Example of **sysprep.xml** file

```xml
<?xml version="1.0" encoding="utf-8"?>
<unattend xmlns="urn:schemas-microsoft-com:unattend">
    <settings pass="oobeSystem">
        <component name="Microsoft-Windows-Shell-Setup" processorArchitecture="x86" publicKeyToken="31bf3856ad364e35"
language="neutral" versionScope="nonSxS" xmlns:wcm="http://schemas.microsoft.com/WMIConfig/2002/State" xmlns:xsi=
"http://www.w3.org/2001/XMLSchema-instance">
            <FirstLogonCommands>
                <SynchronousCommand wcm:action="add">
                    <CommandLine>C:\DRV\HP\Quick Launch Buttons\disk1\setup.exe /clone_wait -s</CommandLine>
                    <Description>QLB</Description>
                    <Order>3</Order>
                </SynchronousCommand>
                <SynchronousCommand wcm:action="add">
                    <CommandLine>msiexec.exe /qn /i C:\DRV\Authentc\Fingerprint\at8min.msi</CommandLine>
                    <Order>1</Order>
                    <Description>Finger Printer</Description>
                </SynchronousCommand>
                <SynchronousCommand wcm:action="add">
                    <CommandLine>C:\DRV\Qualcomm\WWAN\setup.exe</CommandLine>
                    <Description>WWAN</Description>
                    <Order>2</Order>
                </SynchronousCommand>
                <SynchronousCommand wcm:action="add">
                    <Order>4</Order>
                    <CommandLine>C:\DRV\Intel\Matrix Storage Manager\setup.exe -s</CommandLine>
                    <Description>Matrix Storage Manager</Description>
                </SynchronousCommand>
            </FirstLogonCommands>
            <TimeZone></TimeZone>
        </component>
    </settings>
    <settings pass="auditSystem">
        <component name="Microsoft-Windows-PnpCustomizationsNonWinPE" processorArchitecture="x86" publicKeyToken=
"31bf3856ad364e35" language="neutral" versionScope="nonSxS" xmlns:wcm=
"http://schemas.microsoft.com/WMIConfig/2002/State" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
            <DriverPaths>
                <PathAndCredentials wcm:action="add" wcm:keyValue="1">
                    <Path>C:\DRV</Path>
                </PathAndCredentials>
            </DriverPaths>
        </component>
    </settings>
    <settings pass="auditUser">
        <component name="Microsoft-Windows-Deployment" processorArchitecture="x86" publicKeyToken="31bf3856ad364e35"
language="neutral" versionScope="nonSxS" xmlns:wcm="http://schemas.microsoft.com/WMIConfig/2002/State" xmlns:xsi=
"http://www.w3.org/2001/XMLSchema-instance">
            <Reseal>
                <ForceShutdownNow>false</ForceShutdownNow>
                <Mode>OOBE</Mode>
            </Reseal>
        </component>
    </settings>
    <cpi:offlineImage cpi:source="catalog:e:/sources/install_windows vista business.clg" xmlns:cpi=
"urn:schemas-microsoft-com:cpi" />
</unattend>
```

6. Copy **sysprep.xml** to **% SystemDrive%\Windows\System32\Sysprep**.
7. Run the following command:

     sysprep /generalize /audit /shutdown /unattend:sysprep.xml

8. After shutting down the system, use hard-drive duplication software (such as Ghost) to deploy the common image.

Appendix A: Using HP SoftPaq Download Manager

To use HP SoftPaq Download Manager, perform the following steps after manually installing Windows:

1. Boot the Windows OS.
2. Open Microsoft Internet Explorer.
3. Download and install HP Softpaq Download Manager from www.hp.com/go/sdm.
4. When prompted, select **Show software for all supported models**.
5. Select appropriate SoftPaqs from the **Driver** and **Operating System** categories.
   – If duplicate titles appear, select the version with the latest release date that supports the particular notebook PC model.
6. Select any desired software from the remaining SoftPaq categories.
7. After installation is complete, reboot the system.

Appendix B: Sample Sysprep.inf files

Example of Windows XP SYSPREP.INF

```
[Unattended]
OemSkipEula=No
OemPnPDriversPath =
"Drv\Video;Drv\Nic;Drv\Audio;Drv\Modem;Drv\Misc1;Drv\Misc2;Drv\Misc3;Drv\Misc4;Drv\Misc5;Drv\Chipset;Drv\KBD;
Drv\MSD;Drv\USB;Drv\Network"

InstallFilesPath = "C:\i386"

[GuiRunOnce]
Command0=c:\Drv\install.bat

[GuiUnattended]
AdminPassword=*
EncryptedAdminPassword=NO
AutoLogon=Yes
AutoLogonAccountCreation=NO
AutoLogonCount=1
OEMSkipRegional=0
OemSkipWelcome=0
WaitForReboot=NO

[UserData]
ComputerName=*

[RegionalSettings]
```

LanguageGroup=1

[Identification]
JoinWorkgroup=WORKGROUP

[Networking]
InstallDefaultComponents=Yes

[OEM_Ads]
Background=BACKGRND.BMP

[Data]
UseBIOSToBoot=1

[SysprepMassStorage]
PCI\VEN_8086&DEV_2410   = %systemroot%\inf\machine.inf   ;INTEL PCI-ISA bridge
PCI\VEN_1106&DEV_0571   = %systemroot%\inf\mshdc.inf   ;VIA IDE controller
PCI\VEN_10DE&DEV_01BC   = %systemroot%\inf\mshdc.inf   ;NVidia IDE controller

Example of Vista / Windows 7 SYSPREP.XML

```xml
<?xml version="1.0" encoding="utf-8"?>
<unattend xmlns="urn:schemas-microsoft-com:unattend">
   <settings pass="oobeSystem">
      <component name="Microsoft-Windows-International-Core" processorArchitecture="x86"
publicKeyToken="31bf3856ad364e35" language="neutral" versionScope="nonSxS"

xmlns:wcm="http://schemas.microsoft.com/WMIConfig/2002/State" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance">
         <InputLocale>en-us</InputLocale>
         <SystemLocale>en-us</SystemLocale>
         <UILanguage>en-us</UILanguage>
         <UILanguageFallback>en-us</UILanguageFallback>
         <UserLocale>en-us</UserLocale>
      </component>
      <component name="Microsoft-Windows-Shell-Setup" processorArchitecture="x86"
publicKeyToken="31bf3856ad364e35" language="neutral" versionScope="nonSxS"

xmlns:wcm="http://schemas.microsoft.com/WMIConfig/2002/State" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance">
         <OOBE>
            <HideEULAPage>true</HideEULAPage>
            <NetworkLocation>Work</NetworkLocation>
            <ProtectYourPC>1</ProtectYourPC>
            <SkipUserOOBE>true</SkipUserOOBE>
         </OOBE>
         <RegisteredOrganization>Bmankind</RegisteredOrganization>
         <RegisteredOwner>Bmankind</RegisteredOwner>
         <UserAccounts>
            <LocalAccounts>
               <LocalAccount wcm:action="add">
                  <Password>
                     <Value>cABhAHMAcwB3AG8AcgBkAFAAYQBzAHMAdwBvAHIAZAA=</Value>
                     <PlainText>false</PlainText>
                  </Password>
                  <Name>UserA</Name>
                  <Group>administrators</Group>
                  <DisplayName>UserA</DisplayName>
               </LocalAccount>
            </LocalAccounts>
            <AdministratorPassword>
```

```xml
<Value>cABhAHMAcwB3AG8AcgBkAEEAZABtAGkAbgBpAHMAdAByAGEAdABvAHIAUABhAHMAcwB3AG8AcgBkAA==</Value>
                <PlainText>false</PlainText>
            </AdministratorPassword>
        </UserAccounts>
    </component>
</settings>
<settings pass="auditSystem">
    <component name="Microsoft-Windows-PnpCustomizationsNonWinPE" processorArchitecture="x86"
publicKeyToken="31bf3856ad364e35" language="neutral" versionScope="nonSxS"

xmlns:wcm="http://schemas.microsoft.com/WMIConfig/2002/State" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
        <DriverPaths>
            <PathAndCredentials wcm:keyValue="dfbbff91" wcm:action="add">
                <Path>C:\Drv</Path>
            </PathAndCredentials>
        </DriverPaths>
    </component>
    <component name="Microsoft-Windows-Deployment" processorArchitecture="x86"
publicKeyToken="31bf3856ad364e35" language="neutral" versionScope="nonSxS"

xmlns:wcm="http://schemas.microsoft.com/WMIConfig/2002/State" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
        <Reseal>
            <Mode>Audit</Mode>
        </Reseal>
        <AuditComputerName>
            <MustReboot>false</MustReboot>
            <Name>*</Name>
        </AuditComputerName>
    </component>
    <component name="Microsoft-Windows-Shell-Setup" processorArchitecture="x86"
publicKeyToken="31bf3856ad364e35" language="neutral" versionScope="nonSxS"

xmlns:wcm="http://schemas.microsoft.com/WMIConfig/2002/State" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
        <AutoLogon>
            <Username>Administrator</Username>
            <Enabled>true</Enabled>
            <LogonCount>3</LogonCount>
        </AutoLogon>
    </component>
</settings>
<settings pass="specialize">
    <component name="Microsoft-Windows-Shell-Setup" processorArchitecture="x86"
publicKeyToken="31bf3856ad364e35" language="neutral" versionScope="nonSxS"

xmlns:wcm="http://schemas.microsoft.com/WMIConfig/2002/State" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
        <ProductKey>xxxxx-xxxxx-xxxxx-xxxxx-xxxxx</ProductKey>
        <ShowWindowsLive>false</ShowWindowsLive>
        <TimeZone>Eastern Standard Time</TimeZone>
        <Display>
            <ColorDepth>32</ColorDepth>
            <DPI>106</DPI>
            <HorizontalResolution>1280</HorizontalResolution>
            <RefreshRate>75</RefreshRate>
            <VerticalResolution>1024</VerticalResolution>
        </Display>
        <ComputerName>*</ComputerName>
        <CopyProfile>true</CopyProfile>
    </component>
    <component name="Microsoft-Windows-Security-Licensing-SLC-UX" processorArchitecture="x86"
publicKeyToken="31bf3856ad364e35" language="neutral" versionScope="nonSxS"
```

```xml
        xmlns:wcm="http://schemas.microsoft.com/WMIConfig/2002/State" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
            <SkipAutoActivation>true</SkipAutoActivation>
        </component>
        <component name="Microsoft-Windows-UnattendedJoin" processorArchitecture="x86"
publicKeyToken="31bf3856ad364e35" language="neutral" versionScope="nonSxS"

        xmlns:wcm="http://schemas.microsoft.com/WMIConfig/2002/State" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
            <Identification>
                <Credentials>
                    <Domain>arbor01</Domain>
                    <Password>nopass</Password>
                    <Username>installman</Username>
                </Credentials>
                <JoinDomain>arbor01</JoinDomain>
            </Identification>
        </component>
        <component name="Microsoft-Windows-Deployment" processorArchitecture="x86"
publicKeyToken="31bf3856ad364e35" language="neutral" versionScope="nonSxS"

        xmlns:wcm="http://schemas.microsoft.com/WMIConfig/2002/State" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
            <RunSynchronous>
                <RunSynchronousCommand wcm:action="add">
                    <Order>1</Order>
                    <Path>net user administrator /active:yes</Path>
                </RunSynchronousCommand>
            </RunSynchronous>
        </component>
    </settings>
    <cpi:offlineImage cpi:source="wim:d:/sources/install.wim#Windows 7 ULTIMATE" xmlns:cpi="urn:schemas-microsoft-com:cpi" />
</unattend>
```

References

How To Use Setup Manager to Create an Answer File in Windows
- http://support.microsoft.com/kb/308662/EN-US/

System Preparation Tool and Answer File Usage
- http://support.microsoft.com/kb/314460

Windows Automated Installation Kit (AIK) Download
- http://www.microsoft.com/downloads/details.aspx?FamilyID=C7D4BC6D-15F3-4284-9123-679830D629F2&displaylang=en

Windows Automated Installation Kit Information
- http://technet.microsoft.com/en-us/library/cc748933(WS.10).aspx

For more information

To learn more about HP business notebooks, contact your local HP sales representative or visit www.hp.com/go/notebooks.